

REMARKS

Claims 1-3, 7-8, 13-18, and 23-24 have been cancelled. Claims 9-12 and 19-22 are pending in the application.

Claim Rejections – 35 USC §112

The Examiner rejects claims 9-12, 19-22 under 35 U.S.C. 112, second paragraph. Applicant respectfully traverses this rejection.

The Examiner argues that claim 9 is indefinite because it is not clear “exactly where the ‘input’ and ‘output’ of the feedback path are.” *See* Office Action (dated Dec. 10, 2008), pp. 3-4. Applicant respectfully directs the Examiner’s attention to Figure 2 of the instant Application for an exemplary and illustrative example of a feedback path and its corresponding input and output terminals. Figure 2 shows, among other things, a DC cancellation loop 298 and a DC feed loop 300. *See also* Specification, p.12, ll. 2-7. The DC cancellation loop, for example, is part of the subscriber line audio-processing circuit (SLAC) 215. As can be seen from Figure 2, the DC cancellation loop 298 has an input VIN 285, and A/D converter 305, and an output CANC 290. Claim 9 calls for “a feedback path having an input and output terminal, the feedback path including an analog-to-digital converter.” Thus, one of ordinary skill in the art would understand the input and output features of the feedback path when read in light of the specification and the drawings.

The Examiner also argues that the phrase “lesser current flows through at least one component,” as used in the claims, is indefinite because it is unclear as to what value the “lesser current” is less than. *See* Office Action (dated Dec. 10, 2008), p.3. Applicant respectfully points out that when claim 9 is read as a whole (*i.e.*, all the elements are read in context with each other), it is apparent that the current flowing through the A/D converter 305 *after* the input and output terminals are coupled is less than the current that was flowing through the A/D converter

305 when the input and output terminals were not coupled. Indeed, the specification confirms this point. *See* Patent Application, Fig. 2 & p.12, ll.9-15 (stating “during a ringing mode...the switch 319 couples the VIN and CANC terminals 285, 290 of the SLAC 215, thereby disengaging the DC cancellation loop 298 from the CANC terminal 290.”). In view of the claim language and the specification, one of ordinary skill in the art would understand this relationship because the claims call for lesser current “as a result of coupling the input and output terminals.”

With respect to the “lesser current” feature, the Examiner appears to believe that this feature calls for lesser current to flow through a particular component in the feedback path relative to other components in the same feedback path. But, as explained above, when read in context and in view of the specification, claim 9 calls for lesser current to flow through the component (e.g., A/D converter 305) when the input and output terminals are coupled than when they are not coupled. Contrary to the Examiner’s suggestion, claim 9 does not refer to any one particular component in the feedback path receiving less current than another component that is in series in that same feedback path.

For at least these reasons, Applicant respectfully submits that the claims rejected under 356 USC §112, ¶2, are not indefinite. Applicant requests the Examiner’s rejection be withdrawn.

Claim Rejections – 35 USC §103

The Examiner rejected claims 14-17 under 35 U.S.C. 103(a) as being unpatentable over *Moyal*, as applied to claim 13, and further in view of U.S. Patent No. 6,728,370 (*Anderson*). Applicant respectfully traverses this rejection.

Applicants respectfully submit that the *Anderson* reference cited by the Examiner is not valid prior art against the instant Application in conjunction with a rejection under 35 U.S.C. §103(a). *Anderson* does not qualify under 35 U.S.C. §102(a) or (b) because *Anderson* was not

was not publicly known or sold in this or another country, *Anderson* did not publish as a U.S. Patent Application, and the issue date of *Anderson* is Apr. 27, 2004, which is after the filing date of the instant Application (Dec. 29, 2000). Thus, at best, *Anderson* would qualify as prior art under 102(e).

However, according to MPEP §706.02(l)(1), “effective November 29, 1999, subject matter which was prior art under former 35 U.S.C. 103 via 35 U.S.C. 102(e) is now disqualified as prior art against the claimed invention if that subject matter and the claimed invention ‘were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.’ ” The present Application was filed on or after November 29, 1999. Furthermore, the present application and *Anderson* were, at the time the present invention was made, owned by the same entity or subject to an obligation of assignment to the same entity: Legerity, Inc. As such, *Anderson* is not proper prior art against the instant Application.

For at least the aforementioned reasons, claims 14-17 are allowable.

Claim Rejections – 35 USC §102

The Examiner rejects claims 1-3, 7-13, 18-24 under 35 U.S.C. 102(b) as being anticipated by US 5,809,109 (*Moyal*). Applicant respectfully traverses this rejection.

As described in the patent application, signals in a line card can fluctuate to high levels during the ringing mode, thus causing damage to one or more electronic components of the line card. One or more embodiments of the present invention are directed at reducing the potential of damage to electronic components in the line card during the ringing mode. By way of example, Figure 2 of the present application depicts a line card 10 that includes a DC cancellation loop 298 for processing voice signals. This loop may include one or more electrical components, such as an analog-to-digital converter 305, for processing signals. As explained in the patent application, and as shown in Figure 2, during the ringing mode, in order

to reduce the voltage and/or current levels in the line card 10, one or more embodiments of the present invention are directed at coupling the VIN terminal 285 to CANC terminal 290 of the loop using a switch 319. By coupling these terminals in an inventive manner, more of the current flows through these terminals during the ringing mode, while lesser current flows through the DC cancellation loop 298, thereby protecting the electrical components (*e.g.*, A/D converter 305) in the loop from damage. Against this general backdrop, the claims are now specifically addressed.

For ease of illustration, claim 9 is discussed first. Claim 9 is directed to an apparatus that includes a feedback path having an input and output terminal. Claim 9 further specifies that the feedback path includes an analog-to-digital converter for processing voice signals. The apparatus of claim 9 further calls for a switch for coupling the input and output terminal of the feedback path in response to receiving a control signal, wherein lesser current flows through the analog-to-digital converter in the feedback path as a result of coupling the input and output terminals. As explained in the patent application, the two terminals are coupled so that lesser current flows to the A/D converter, thereby reducing the potential of any damage.

The Examiner asserts that *Moyal* teaches all the features of claim 9. Applicant respectfully disagrees. The Examiner argues that the ring and tip terminals 18 and 20 of *Moyal* respectively correspond to the input and the output terminals recited in claim 9, and switch 105 of *Moyal* corresponds to the “switch” referenced in claim 9. The Examiner’s argument fails for several reasons. First, switch 105 in *Moyal* does not “couple” the ring and tip terminals 18, 20. Rather, as shown in Figure 4 of *Moyal*, switch 105 couples the Vin to the A/D converter 110 during the non-ringing state, and couples the output of PCD CKT 100 to the A/D converter 110 during the ringing state. In both the ringing state and non-ringing state, the ring and tip terminal 18, 20 remain coupled to the subscriber line 14, as can be seen more clearly in Figure 1 of

Moyal. That is, the tip and ring terminals 18, 20 are not coupled to each other by the switch 105, as alleged by the Examiner. In contrast, claim 9 calls for the switch to couple the input and output terminals of the feedback path in response to the control signal. The alleged coupling between the ring and tip terminals 18, 20 in **Moyal** is no different during the ringing mode (i.e. when the ring command is supplied to switch 105) than it is during the non-ringing mode. As such, contrary to the Examiner's suggestion, **Moyal** at least does not teach coupling the input and output terminals of a feedback path, as called for in claim 9.

In the Office Action (dated Dec. 10, 2008) the Examiner indicated in the Response to Arguments section that it is the Examiner's position that the Vin terminal of switch 105 and the input terminal of the A/D converter 110 correspond to the claimed input and output terminals, as called for in claim 9. *See* Office Action (dated Dec. 10, 2008), p.7. This position is in direct conflict with the Examiner's position stated in the 35 USC §102 rejection section of the Office Action (dated Dec. 10, 2008). *See id.* at pp.3-4 (stating that the tip and ring terminals 18 and 20 correspond to the input/output terminals of claim 9). At best, the Examiner's positions appear to be inconsistent. Regardless, to the extent it is the Examiner's position that the Vin terminal of switch 105 and the input to the A/D converter 110 correspond to the input and output terminals called for in claim 1, this position is untenable for at least the following reasons.

Figure 4 and col. 3, ll. 19-38 of **Moyal**, as cited by the Examiner, describe a switch 105 that couples the output line 101 (i.e., the output line of PCD circuit 100) to the input of A/D converter 110 when the circuit is in the ringing mode. In the non-ringing mode, **Moyal** teaches that the switch couples the Vin signal to the input of A/D converter 110. This configuration is problematic for the Examiner's position because the Vin signal and the input of A/D 110 are not input/output terminals of a feedback loop. When in ringing mode, there is no loop between the Vin signal and the input of A/D 110. In ringing mode, the switch opens the connection between

the Vin signal and the input of A/D 110; in other words, an open connection means there is no contact between these two points. The description and figures in *Moyal* do not teach or describe any other loop, circuit or connection between the Vin signal and the input of A/D 110. Thus, if there is no contact or other circuit connecting the Vin signal and the input of A/D 110, there cannot be a feedback loop in ringing mode. It follows that if there is not a feedback loop in ringing mode, the switch 105 cannot couple the input/output terminals of the feedback loop in response to receiving a control signal. In contrast, claim 1 calls for an input and an output of a feedback loop and for coupling the input and output in response to receiving a control signal.

The Examiner's argument fails for yet another reason. Claim 9 further specifies that lesser current flows through the analog-to-digital converter in the feedback path as a result of coupling the input and output terminals. *Moyal* does not teach or suggest this feature. Rather, *Moyal* discloses that when the "ring command" is applied to the switch 105, the entire output of the PCD circuit 100 (which was received through the ring and tip terminals 18, 20) is sampled by the A/D converter 110. *See Moyal*, 3:19-25. In other words, *Moyal* does not teach or suggest lesser current flowing through the A/D converter as a result of the coupling of the terminals ("tip and ring" terminals, according to the Examiner). In contrast, one or more embodiments of the present invention cause lesser current to flow through the feedback path by coupling the terminals, thereby reducing the potential of harm to the electrical component(s). *Moyal's* arrangement does not allow this.

Further, in the Office Action (dated Dec. 10, 2008) the Examiner argued in the Response to Arguments section that the Vin signal has a lower voltage than the analog ringing signal driving the subscriber loop, and by virtue of a lower voltage, the Vin signal would also have less current. *See Office Action* (dated Dec. 10, 2008), p.7. The Examiner does not cite any additional facts in the Response to Arguments section to substantiate this conclusory statement.

The Examiner's position rests upon the assumption that the Vin line has the same impedance value as the PCD Circuit output line 101 (i.e., because $\text{Voltage} = \text{Current} * \text{Resistance}$ or $\text{Current} * \text{Impedance}$). That is, the Vin line and the output line 101 would need to have equal impedance values for a direct correlation between rise in voltage and subsequent fall in current. In other words, even if it is assumed, for the sake of argument, that the voltage on Vin is lower than the voltage on PCD Circuit output line 101, there would not be less current flowing into the A/D converter 110 if the impedance of the Vin line was higher than that of the PCD Circuit output line 101 (according to the formula $\text{Voltage} = \text{Current} * \text{Resistance}$). There are no teachings in *Moyal* that specifying the impedance value of the Vin line or that the current into the A/D converter 110 is less when switch 105 is in the non-ringing position.

For at least these additional reasons, claim 9 is allowable. Moreover, for at least the reasons discussed above, claims depending from claim 9 are also allowable.

Other pending claims are allowable in view of the features recited therein. For example, claim 19 and its dependent claims are allowable because *Moyal* fails to at least teach the claimed feature of coupling the input and the output terminal of the first path in response to receiving the control signal such that lesser current flows through at least one of the components while the input and output terminals are coupled. Similarly, claim 22 is allowable because *Moyal* at least fails to teach a means for coupling the input and the output terminal of the first path in response to receiving the control signal, wherein the coupling of the input and output terminals allows lesser current to flow through at least one of the components.

In light of the reasons presented above, a Notice of Allowance is respectfully solicited.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Houston, Texas

telephone number (713) 934-4064 to discuss the steps necessary for placing the application in condition for allowance.

Respectfully submitted,

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